DEEP-SEA ROCKS ARE HOME TO METHANE **MUNCHING MICROBES**

Deep-sea rocks are home to methane munching microbes

Towering rocks in the ocean hold a very interesting species that we never knew contributed to the ecosystem. These stones are a home to methane munching microbes, which seep the natural methane on the sea floor. The researchers, however, only went through the first few inches of these rocks, hence, their depth in total is still unknown. In addition, it seems that these small parasitic colonies may eat up enough methane to affect the global atmospheric methane levels.The scientists added that the deep ocean is a sink for atmospheric methane, which explains the missing link in the methane cycle.

Around fifteen years ago, a Caltech geobiologist Victoria Orphan found that the mud on the seafloor seeping the methane is dead dirt. However, now it has been found that the dirt is full of microbes (bacteria) that consume the natural methane which bubbles up from the surface reservoirs.

These surfaces are dominated by enormous rocks, which are hundreds of feet long and tall. The rocks are made of minerals, which are deposited from the sea water. No one had researched these rocks before to find out if they hosted the same mud as the ocean's floor.

The researchers had launched two expeditions in the deep ocean at a place called the "Hydrate Ridge", which is 62 miles off the coast of Oregon. There in the near-freezing waters, around 800 meters below the sea level, the scientists took samples from rocks away from the methane activity and from the rocks close to the methane seeps. They returned with 24 rock samples. Using microscopes, they found that the rocks near the methane seeps had clusters of microbes on them. Further DNA analysis revealed that the rocks hosted the microbes in the same ratio as the mud on the sea floor.

The tracking studies also revealed the functioning of the microbes more closely. It was seen that the microbes process the methane and then excrete several types of bi-products that mineralize the water around them. The researchers believe that the microbes process methane into a bicarbonate, which then reacts to the calcium in the water to create calcium carbonate.

Similar to carbon dioxide, methane is also a greenhouse gas, which is capable of capturing heat from the sun in the atmosphere below the ozone. Methane, in fact, is forty times more powerful at greenhousing than CO2. However, because carbon dioxide is more abundant, it contributes a greater deal to the process. Further research is still required in order to find out how the additional microbial activity contributes to the methane cycle.

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